

**Abstract**

In a method of wireless transmission, space time matrices are used to spread the transmission of data over two or more transmit antennas and/or over two or more symbol intervals. Initially, blocks of data are encoded as symbols, each being a complex amplitude selected from a symbol constellation. A finite set of space-time matrices, referred to as “dispersion matrices,” is predetermined. In transmission, a group of symbols are transmitted concurrently. Each of the symbols to be transmitted is multiplied by a respective dispersion matrix. Thus, a composite matrix, proportional to a sum of dispersion matrices multiplied by their corresponding symbols, is modulated onto a carrier and transmitted. In reception, knowledge of the dispersion matrices is used to recover the transmitted symbols from the received signals corresponding to the composite matrix that was transmitted.